

Application No.: 10/698,820

Docket No.: MWS-062RCE

REMARKS

In this Response, claims 1-5, 11-20, 23 and 26 have been amended. Claims 1-26 are currently pending, of which claims 1, 12 and 16 are independent. No new matter has been added. Support for the amendments to independent claims 1, 12 and 16 can be found in Applicants' specification at least at page 7, lines 1-9. Applicants respectfully request reconsideration of the outstanding rejections and passage of the claims to allowance.

I. Telephone Interview with the Examiner

Applicants thank the Examiner for the telephone interview conducted with the Examiner on January 9, 2008. The topic of the interview focused on the 35 U.S.C. § 102(b) rejections concerning the "custom storage class" recited in independent claims 1, 12 and 16.

As background on the invention, Applicants discussed the use of a **data storage class** to prescribe how data is represented in source code produced from a graphical model, and **predefined sets of storage classes** which may be provided by code generators. Applicants then addressed the novelty of the claimed **custom storage classes**, which can be defined by a user with user-defined characteristics. During the interview, Applicants presented arguments that the claimed custom storage class is not disclosed, taught or suggested by the parameter or handler function definitions in United States Patent Publication Number 2002/0010908 to Cheng et al. (hereafter "Cheng"). The Examiner indicated that he felt a "custom storage class" could be construed so as to read on Cheng, and recommended that Applicants consider amending the claims to recite how a custom storage class functions.

II. Claim Amendments

Applicants have amended independent claims 1, 12 and 16 to elaborate on how a custom storage class functions. For example, claims 1, 12, and 16 have been amended to recite:

"specifying a *first manner* in which said automatic code generator creates said source code," and

"said custom storage class specifying a *second manner* in which said automatic code generator creates source code corresponding to said data referenced by said graphical model"

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Applicants have also amended claims 2-5, 11, 13-15, 17-20, 23 and 26 to correct clerical errors. No new matter has been added by the claim amendments.

III. Summary of Rejections

Claims 1-4, 6-8, 12-14, 16-19 and 21-23 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Cheng.

Claims 5, 15 and 20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Cheng in view of United States Patent Publication Number US 2004/0085357 to Childress et al. (hereafter "Childress").

Claims 9, 10, 24 and 25 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Cheng in view of United States Patent Publication Number US 2003/0225774 to Davidov et al. (hereafter "Davidov").

Claim 11 and 26 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Cheng and in view of United States Patent Number US 6,066,181 to DeMaster (hereafter "DeMaster").

These rejections will be discussed separately below.

IV. Claim Rejections under 35 U.S.C. § 102(b)

The Examiner rejected claims 1-4, 6-8, 12-14, 16-19 and 21-23 under 35 U.S.C. § 102(b) as being anticipated by Cheng (Office Action, paragraph 8). Applicants respectfully traverse the 35 U.S.C. § 102(b) rejections of claims 1-4, 6-8, 12-14, 16-19 and 21-23 as set forth below.

A. Claim 1

Amended independent claim 1 recites:

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In an electronic device having a graphical modeling and execution environment, said graphical modeling and execution environment including at least one graphical model, a method comprising the steps of:

providing an automatic code generator to create source code that implements functionality of said graphical model and that corresponds to data referenced by said graphical model;

specifying a first manner in which said automatic code generator creates said source code;

providing a user interface with a plurality of selectable parameters for a custom storage class, said *custom storage class specifying a second manner in which said automatic code generator creates source code corresponding to said data referenced by said graphical model in said graphical modeling and execution environment, said second manner differing from said first manner*; and

creating said custom storage class in said graphical modeling and execution environment utilizing parameters selected by a user from said plurality of selectable parameters. [emphasis added]

Applicants respectfully submit that Cheng fails to disclose at least the following feature of amended independent claim 1: "*custom storage class specifying a second manner in which said automatic code generator creates source code corresponding to said data referenced by said graphical model in said graphical modeling and execution environment, said second manner differing from said first manner.*"

The Examiner points to the handler function definitions and parameter definitions as disclosing the custom storage class recited in claim 1 (Office Action, paragraph 8). Applicants respectfully disagree with the Examiner's characterization of Cheng. Applicants contend that the *handler function definitions and parameter definitions*, discussed in Cheng, are not synonymous with the *custom storage class* recited in claim 1, as will be discussed in more detail below.

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i) "said custom storage class specifying a second manner in which said automatic code generator creates source code corresponding to said data referenced by said graphical model... said second manner differing from said first manner"

Cheng does not disclose that the custom storage class specifies a second manner in which an automatic code generator creates source code, the second manner differing from the first manner, as required by claim 1. As discussed in Applicants' Specification at pages 1-2, each item of data in a graphical model is defined to have a data storage class. Data is represented in software source code produced from the graphical model in a manner that is prescribed by its data storage class (Specification, page 1). The software source code references data in a number of different ways including defining data, declaring data, initializing data, reading a value of data, assigning the value of data, and the choice of storage class controls how each of these references are generated (Specification, pages 1-2).

As discussed in Applicants' specification at page 7, lines 1-9, for a data item belonging to a predefined storage class, a code generator applies a fixed set of instructions to generate code for the data item. In contrast, for a data item belonging to a custom storage class, the code generator applies an external set of user-defined instructions.

Cheng does not disclose that the handler function definitions or the parameter definitions specify a second and different manner in which a code generator creates source code. Cheng discusses that handler function code is generated by a handler code generation engine 135 which uses information entered by the developer and parameter and handler function definitions (Cheng, paragraph 43). Cheng does not disclose *two different manners* in which the code generation engine may create code using a handler function definition or a parameter definition. Cheng in no way discloses that a handler function definition or a parameter definition specifies a *second and different manner* in which the code generation engine may generate code. As such, Cheng fails to disclose "custom storage class specifying a second manner in which said automatic code generator creates source code corresponding to said data referenced by said graphical model... said second manner differing from said first manner," as recited in claim 1.

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ii) "said source code corresponding to said *data referenced by said graphical model...*"

In addition, Cheng does not disclose that the source code corresponds to data referenced by a graphical model, as required by claim 1. Cheng discusses that execution of the handler function code associated with the handler function of a command node causes the operating system to carry out the command entered by the user (Cheng, paragraph 18). The handler function code is generated by a handler code generation engine 135 which uses information entered by the developer and parameter and handler function definitions (Cheng, paragraph 43). The parameter definitions and handler function definitions provide information on *how the commands typed in the command-line interface can be carried out* by the operating system. Cheng does not disclose that the parameter definitions or the handler function definitions specify the manner in which handler function code is generated corresponding to *data referenced by said graphical model* in said graphical modeling and execution environment, as required by claim 1. In fact, Cheng does not mention referencing of data by a graphical model. As such, Cheng fails to disclose "said source code corresponding to said *data referenced by said graphical model.*"

iii) "source code that *implements functionality of said graphical model...*"

Furthermore, Cheng does not disclose source code that implements functionality of said graphical model, as required by claim 1. The command tree and the command line interface (CLI) of Cheng are not graphical models or graphical modeling and execution environments, as required by claim 1. Cheng teaches that executing the software code associated with a handler function *causes the operating system to carry out the particular command typed by the user in the command-line interface* (Cheng, paragraph 22). Thus, when a user enters a command at the interface, the operating system traverses the command tree branch and reaches an appropriate node (Cheng, paragraph 22). At the node, the operating system retrieves the appropriate handler function and executes the software code associated with the handler function (Cheng, paragraph 22). This results in the operating system *carrying out the command entered by the user* (Cheng, paragraph 22).

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In contrast, claim 1 requires that execution of the source code *implements the functionality of the graphical model*. Execution of a command entered by a user at a command-line interface, as discussed in Cheng, is not synonymous with implementing the functionality of a graphical model in a graphical modeling and execution environment as recited in claim 1. As such, Cheng fails to disclose "source code that *implements functionality of said graphical model*," as recited in claim 1.

In view of the above arguments, Applicants respectfully request reconsideration and allowance of claim 1.

B. Claims 2-4 and 6-8

Claims 2-4 and 6-8 depend from independent claim 1 and, as such, incorporate all of the elements of claim 1. Accordingly, claims 2-4 and 6-8 are allowable for at least the reasons set forth above with respect to claim 1. Applicants therefore respectfully request reconsideration and allowance of claims 2-4 and 6-8.

C. Claim 12

Amended independent claim 12 recites:

An electronic device having a modeling and execution environment with at least one graphical model, said electronic device comprising:

a processor for:

executing an automatic code generator to create source code that implements functionality of said graphical model and that corresponds to data referenced by said graphical model;

specifying a first manner in which said automatic code generator creates said source code; and

creating a custom storage class in said modeling and execution environment, said custom storage class created utilizing parameters selected by a user from a plurality of selectable parameters; and

a display device for:

displaying a user interface with said plurality of selectable parameters for said custom storage class, said *custom storage class specifying a second manner in which said automatic code generator creates source code corresponding to*

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said data referenced by said graphical model, said second manner differing from said first manner; and
displaying a view of salient aspects of said source code generated by said automatic code generator utilizing said user-selected parameters. [emphasis added]

Applicants respectfully submit that Cheng fails to disclose at least the following feature of claim 12: "*custom storage class specifying a second manner in which said automatic code generator creates source code corresponding to said data referenced by said graphical model, said second manner differing from said first manner.*" As discussed above in connection with claim 1, Cheng fails to disclose a custom storage class as recited in Applicants' claims. Therefore, Cheng does not support a valid 35 U.S.C. § 102(b) rejection of claim 12. Applicants respectfully request reconsideration and allowance of claim 12.

D. Claims 13 and 14

Claims 13 and 14 depend from independent claim 12 and, as such, incorporate all of the elements of claim 12. Accordingly, claims 13 and 14 are allowable for at least the reasons set forth above with respect to claim 12. Applicants therefore respectfully request reconsideration and allowance of claims 13 and 14.

E. Claim 16

Amended independent claim 16 recites:

A computer-readable medium for use in an electronic device having a graphical modeling and execution environment, said graphical modeling and execution environment including at least one graphical model, said computer-readable medium storing computer-executable instructions for:

providing an automatic code generator to create source code that implements functionality of said graphical model and that corresponds to data referenced by said graphical model;

specifying a first manner in which said automatic code generator creates said source code;

providing a user interface with a plurality of selectable parameters for a custom storage class, said *custom storage class specifying a second manner in which said automatic code generator creates source code corresponding to said data*

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referenced by said graphical model in said graphical modeling and execution environment, said second manner differing from said first manner; and

creating said custom storage class in said graphical modeling and execution environment utilizing parameters selected by a user from said plurality of selectable parameters. [emphasis added]

Applicants respectfully submit that Cheng fails to disclose at least the following feature of claim 16: *"custom storage class specifying a second manner in which said automatic code generator creates source code corresponding to said data referenced by said graphical model in said graphical modeling and execution environment, said second manner differing from said first manner."* As discussed above in connection with claim 1, Cheng fails to disclose a custom storage class as recited in Applicants' claims. Therefore, Cheng does not support a valid 35 U.S.C. § 102(b) rejection of claim 16. Applicants respectfully request reconsideration and allowance of claim 16.

F. Claims 17-19 and 21-23

Claims 17-19 and 21-23 depend from independent claim 16 and, as such, incorporate all of the elements of claim 16. Accordingly, 17-19 and 21-23 are allowable for at least the reasons set forth above with respect to claim 16. Applicants therefore respectfully request reconsideration and allowance of claims 17-19 and 21-23.

V. Claim Rejections under 35 U.S.C. § 103(a)

A. Claims 5, 15 and 20

The Examiner rejected claims 5, 15 and 20 under 35 U.S.C. § 103(a) as being unpatentable over Cheng in view of Childress (Office Action, paragraph 10). Applicants respectfully traverse the 35 U.S.C. § 103(a) rejections of claims 5, 15 and 20 as set forth below.

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1) Claims 5 and 20

Cheng and Childress, alone or in any reasonable combination, do not disclose or suggest the features of claims 5 and 20.

The Cheng reference has been summarized above.

As discussed previously in connection with claim 1, Cheng does not address a custom storage class as recited in Applicants' claims. As such, Cheng fails to disclose or suggest the features of claims 1 and 16 from which claims 5 and 20, respectively, depend. For example, Cheng does not disclose or suggest *"custom storage class specifying a second manner in which said automatic code generator creates source code corresponding to said data referenced by said graphical model in said graphical modeling and execution environment, said second manner differing from said first manner,"* as recited in amended independent claim 1. The teachings of Childress do not supplement Cheng in such a way as to cure the shortcomings of Cheng with respect to the features of independent claims 1 and 16.

The Childress reference discusses creating, viewing and/or modifying business rules used by an automated insurance claim processing system (Childress, paragraphs [0009-0010]). A rule editor may provide a user with a graphical display of at least a portion of a business rule implemented in software (Childress, paragraphs [0009-0010]). Business rules of knowledge-based system encode the formulas used in evaluating insurance claims in an insurance claim processing software (Childress, paragraph [0007]).

Regarding claim 1 from which claim 5 depends, Childress fails to disclose or suggest *"custom storage class specifying a second manner in which said automatic code generator creates source code corresponding to said data referenced by said graphical model in said graphical modeling and execution environment, said second manner differing from said first manner,"* as recited in amended independent claim 1. As such, a combination of Cheng and Childress fails to disclose or suggest the features of claim 5 which depends on claim 1.

Regarding claim 16 from which claim 20 depends, Childress fails to disclose or suggest *"custom storage class specifying a second manner in which said automatic code generator*

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creates source code corresponding to said data referenced by said graphical model in said graphical modeling and execution environment, said second manner differing from said first manner," as recited in amended independent claim 16. As such, a combination of Cheng and Childress fails to disclose or suggest the features of claim 20 which depends on claim 16.

For at least the reasons presented above, Cheng and Childress, alone or in any reasonable combination, fail to disclose or suggest the features of dependent claims 5 and 20. Therefore, the combination of Cheng and Childress does not support a valid 35 U.S.C. § 103(a) rejection of claims 5 and 20.

ii) Claim 15

A combination of Cheng and Childress does not disclose or suggest the features of claim 15. As discussed previously in connection with claim 1, Cheng fails to disclose or suggest the features of claim 12 from which claim 15 depends. The teachings of Childress do not supplement Cheng in such a way as to cure the shortcomings of Cheng with respect to the features of independent claim 12.

For example, regarding claim 12 from which claim 15 depends, Childress fails to disclose or suggest *"custom storage class specifying a second manner in which said automatic code generator creates source code corresponding to said data referenced by said graphical model, said second manner differing from said first manner,"* as recited in amended independent claim 12. As such, a combination of Cheng and Childress fails to disclose or suggest the features of claim 15 which depends on claim 12.

For at least the reasons presented above, Cheng and Childress, alone or in any reasonable combination, fail to disclose or suggest the features of dependent claim 15. Therefore, the combination of Cheng and Childress does not support a valid 35 U.S.C. § 103(a) rejection of claim 15.

B. Claims 9, 10, 24 and 25

The Examiner rejected claims 9, 10, 24, and 25 under 35 U.S.C. § 103(a) as being unpatentable over Cheng in view of Davidov (Office Action, paragraph 11). Applicants

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respectfully traverse the 35 U.S.C. § 103(a) rejections of claims 9, 10, 24 and 25 as set forth below.

Cheng and Davidov, alone or in any reasonable combination, do not disclose or suggest the features of claims 9, 10, 24 and 25.

The Cheng reference has been summarized above.

As discussed previously in connection with claim 1, Cheng fails to disclose or suggest the features of claims 1 and 16 from which claims 9, 10, 24 and 25 depend. For example, Cheng does not disclose or suggest *"custom storage class specifying a second manner in which said automatic code generator creates source code corresponding to said data referenced by said graphical model in said graphical modeling and execution environment, said second manner differing from said first manner,"* as recited in amended independent claim 1. The teachings of Davidov do not supplement Cheng in such a way as to cure the shortcomings of Cheng with respect to the features of independent claims 1 and 16.

The Davidov reference discusses an infrastructure for creating applications for mobile information devices, using a tag-based markup language (Davidov, paragraph [0013]).

Regarding claim 1 from which claims 9 and 10 depend, Davidov fails to disclose or suggest *"custom storage class specifying a second manner in which said automatic code generator creates source code corresponding to said data referenced by said graphical model in said graphical modeling and execution environment, said second manner differing from said first manner,"* as recited in amended independent claim 1. As such, a combination of Cheng and Davidov fails to disclose or suggest the features of claims 9 and 10 which depend on claim 1.

Regarding claim 16 from which claims 24 and 25 depend, Davidov fails to disclose or suggest *"custom storage class specifying a second manner in which said automatic code generator creates source code corresponding to said data referenced by said graphical model in said graphical modeling and execution environment, said second manner differing from said first manner,"* as recited in amended independent claim 16. As such, a combination of

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Cheng and Davidov fails to disclose or suggest the features of claims 24 and 25 which depend on claim 16.

For at least the reasons presented above, Cheng and Davidov, alone or in any reasonable combination, fail to disclose or suggest the features of dependent claims 9, 10, 24 and 25. Therefore, the combination of Cheng and Davidov does not support a valid 35 U.S.C. § 103(a) rejection of claims 9, 10, 24 and 25.

C. Claims 11 and 26

The Examiner rejected claims 11 and 26 under 35 U.S.C. § 103(a) as being unpatentable over Cheng in view of DeMaster (Office Action, paragraph 12). Applicants respectfully traverse the 35 U.S.C. § 103(a) rejections of claims 11 and 26 as set forth below.

Cheng and DeMaster, alone or in any reasonable combination, do not disclose or suggest the features of claims 11 and 26.

The Cheng reference has been summarized above.

As discussed previously in connection with claim 1, Cheng fails to disclose or suggest the features of claims 1 and 16 from which claims 11 and 26, respectively, depend. For example Cheng does not disclose or suggest "*custom storage class specifying a second manner in which said automatic code generator creates source code corresponding to said data referenced by said graphical model in said graphical modeling and execution environment, said second manner differing from said first manner,*" as recited in amended independent claim 1. The teachings of DeMaster do not supplement Cheng in such a way as to cure the shortcomings of Cheng with respect to the features of independent claims 1 and 16.

The DeMaster reference discusses a Java native interface code generator to facilitate mixed language programming (DeMaster, column 2, lines 5-17). The Java native interface code generator makes native code programmed in a native language, such as C, C++ or Assembly, accessible to Java application programs (DeMaster, column 2, lines 5-17).

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Regarding claim 1 from which claim 11 depends, DeMaster fails to disclose or suggest *"custom storage class specifying a second manner in which said automatic code generator creates source code corresponding to said data referenced by said graphical model in said graphical modeling and execution environment, said second manner differing from said first manner,"* as recited in amended independent claim 1. As such, a combination of Cheng and DeMaster fails to disclose or suggest the features of claim 11 which depends on claim 1.

Regarding claim 16 from which claim 26 depends, DeMaster fails to disclose or suggest *"custom storage class specifying a second manner in which said automatic code generator creates source code corresponding to said data referenced by said graphical model in said graphical modeling and execution environment, said second manner differing from said first manner,"* as recited in amended independent claim 16. As such, a combination of Cheng and DeMaster fails to disclose or suggest the features of claim 26 which depends on claim 16.

For at least the reasons presented above, Cheng and DeMaster, alone or in any reasonable combination, fail to disclose or suggest the features of dependent claims 11 and 26. Therefore, the combination of Cheng and DeMaster does not support a valid 35 U.S.C. § 103(a) rejection of claims 11 and 26.

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CONCLUSION

In view of the foregoing amendments and arguments, Applicants believe that all claims should be passed to issuance. Should the Examiner feel that a teleconference would expedite the prosecution of this application, the Examiner is urged to contact the Applicants' attorney at (617) 227-7400.

Please charge any shortage or credit any overpayment of fees to our Deposit Account No. 12-0080, under Order No. MWS-062RCE. In the event that a petition for an extension of time is required to be submitted herewith, and the requisite petition does not accompany this response, the undersigned hereby petitions under 37 C.F.R. §1.136(a) for an extension of time for as many months as are required to render this submission timely. Any fee due is authorized to be charged to the aforementioned Deposit Account.

Dated: March 4, 2008

Respectfully submitted,

By Kevin J. Canning
Kevin J. Canning
Registration No.: 35,470
LAHIVE & COCKFIELD, LLP
One Post Office Square
Boston, Massachusetts 02109-2127
(617) 227-7400
(617) 742-4214 (Fax)
Attorney/Agent For Applicant